

CLAIMS

What is claimed is:

- 5 1. A method for controlling zoning within a device, the method comprising the steps of:
receiving a generic zone control command;
translating the generic zone control command to at least one vendor specific
device command of a plurality of vendor specific device commands that respectively
control zoning in a plurality of different vendor devices; and
10 performing functions associated with the at least one vendor specific device
command to control zoning in a device.
2. The method of claim 1 wherein the step of translating includes the steps of:
identifying a vendor of at least one device within a zone corresponding to the
15 generic zone control command; and
selecting a set of vendor specific device commands, from the plurality of vendor
specific device commands that respectively control zoning in devices from different
vendors, that corresponds to the vendor of at least one device within the zone.
- 20 3. The method of claim 2 wherein the step of selecting a set of vendor specific device
commands selects the set of vendor specific device commands that are specific to a
vendor of a device that exists within the zone to which the generic zone control command
is directed.
- 25 4. The method of claim 2 wherein the step of identifying includes the steps of:
identifying devices within the zone that are affected by the generic zone control
command; and
identifying vendors of the devices within the zone that are affected by the generic
zone control command.

5. The method of claim 1 wherein:

the plurality of vendor specific device commands include sets of vendor specific device commands; and

5 wherein the step of translating includes the steps of:

selecting a set of vendor specific device commands that can control zoning within a device to which the generic zone control command is directed; and

10 dynamically loading the set of vendor specific device commands into a management application to allow the management application to control zoning within the device to which the generic zone control command is directed.

6. The method of claim 5 wherein the step of translating includes steps of:

15 selecting the at least one vendor specific device command, within the set of vendor specific device commands, that performs zoning operations, in the device to which the generic zone control command is directed, in accordance with the generic zone control command; and

20 mapping parameters of the generic zone control command to parameters of the at least one vendor specific device command to provide the vendor specific device command with data required to perform the zoning operations in the device.

7. The method of claim 5 wherein the set of vendor specific device commands is selected based on an identity of a vendor of the device to which the generic zone control
25 command is directed.

8. The method of claim 1 wherein the step of receiving receives the generic zone control command from a device management application that can control zoning in a network of devices manufactured by different vendors.

9. The method of claim 1 wherein the step of performing performs the at least one vendor specific device command to control zoning within a device from a vendor that is a vendor of devices that are controlled by the vendor specific device command to which the generic zone control command is translated.

5

10. The method of claim 1 wherein the step of translating includes the steps of:

loading a library of vendor specific device commands into a management application based on an identity of a vendor of a device affected by the generic zone control command; and

10 calling the at least one vendor specific device command using the generic zone control command having the same format as the at least one vendor specific device command perform zoning operations within the device affected by the generic zone control command.

15 11. The method of claim 1 wherein the steps of receiving, translating and performing are processed by a management application that controls zoning within switches in a data storage network and wherein the step of translating includes a step of loading a dynamically linked library of vendor specific device commands, selected based on a vendor of a device affected by the generic zone control command, into a memory for use
20 by the management application to control zoning in the device.

25

30

096513

5

a memory system coupled to the processor and to the input-output interface and encoded with instructions that form a multi-zone management application that, when performed on the processor, cause the computer system to:

10

device command of a plurality of vendor specific device commands that respectively control zoning in a plurality of different vendor devices coupled to the input-output interface; and

15

a multi-zone command database containing the plurality of vendor specific device commands; and

20

identify a vendor of at least one device within the zone
corresponding to the generic zone control command;

25

30

5

10

15

20

25

09647 1981
09648 1981
09649 1981
09650 1981
09651 1981
09652 1981
09653 1981
09654 1981
09655 1981
09656 1981
09657 1981
09658 1981
09659 1981
09660 1981
09661 1981
09662 1981
09663 1981
09664 1981
09665 1981
09666 1981
09667 1981
09668 1981
09669 1981
09670 1981
09671 1981
09672 1981
09673 1981
09674 1981
09675 1981
09676 1981
09677 1981
09678 1981
09679 1981
09680 1981
09681 1981
09682 1981
09683 1981
09684 1981
09685 1981
09686 1981
09687 1981
09688 1981
09689 1981
09690 1981
09691 1981
09692 1981
09693 1981
09694 1981
09695 1981
09696 1981
09697 1981
09698 1981
09699 1981
09700 1981
09701 1981
09702 1981
09703 1981
09704 1981
09705 1981
09706 1981
09707 1981
09708 1981
09709 1981
09710 1981
09711 1981
09712 1981
09713 1981
09714 1981
09715 1981
09716 1981
09717 1981
09718 1981
09719 1981
09720 1981
09721 1981
09722 1981
09723 1981
09724 1981
09725 1981
09726 1981
09727 1981
09728 1981
09729 1981
09730 1981
09731 1981
09732 1981
09733 1981
09734 1981
09735 1981
09736 1981
09737 1981
09738 1981
09739 1981
09740 1981
09741 1981
09742 1981
09743 1981
09744 1981
09745 1981
09746 1981
09747 1981
09748 1981
09749 1981
09750 1981
09751 1981
09752 1981
09753 1981
09754 1981
09755 1981
09756 1981
09757 1981
09758 1981
09759 1981
09760 1981
09761 1981
09762 1981
09763 1981
09764 1981
09765 1981
09766 1981
09767 1981
09768 1981
09769 1981
09770 1981
09771 1981
09772 1981
09773 1981
09774 1981
09775 1981
09776 1981
09777 1981
09778 1981
09779 1981
09780 1981
09781 1981
09782 1981
09783 1981
09784 1981
09785 1981
09786 1981
09787 1981
09788 1981
09789 1981
09790 1981
09791 1981
09792 1981
09793 1981
09794 1981
09795 1981
09796 1981
09797 1981
09798 1981
09799 1981
09800 1981
09801 1981
09802 1981
09803 1981
09804 1981
09805 1981
09806 1981
09807 1981
09808 1981
09809 1981
09810 1981
09811 1981
09812 1981
09813 1981
09814 1981
09815 1981
09816 1981
09817 1981
09818 1981
09819 1981
09820 1981
09821 1981
09822 1981
09823 1981
09824 1981
09825 1981
09826 1981
09827 1981
09828 1981
09829 1981
09830 1981
09831 1981
09832 1981
09833 1981
09834 1981
09835 1981
09836 1981
09837 1981
09838 1981
09839 1981
09840 1981
09841 1981
09842 1981
09843 1981
09844 1981
09845 1981
09846 1981
09847 1981
09848 1981
09849 1981
09850 1981
09851 1981
09852 1981
09853 1981
09854 1981
09855 1981
09856 1981
09857 1981
09858 1981
09859 1981
09860 1981
09861 1981
09862 1981
09863 1981
09864 1981
09865 1981
09866 1981
09867 1981
09868 1981
09869 1981
09870 1981
09871 1981
09872 1981
09873 1981
09874 1981
09875 1981
09876 1981
09877 1981
09878 1981
09879 1981
09880 1981
09881 1981
09882 1981
09883 1981
09884 1981
09885 1981
09886 1981
09887 1981
09888 1981
09889 1981
09890 1981
09891 1981
09892 1981
09893 1981
09894 1981
09895 1981
09896 1981
09897 1981
09898 1981
09899 1981
09900 1981
09901 1981
09902 1981
09903 1981
09904 1981
09905 1981
09906 1981
09907 1981
09908 1981
09909 1981
09910 1981
09911 1981
09912 1981
09913 1981
09914 1981
09915 1981
09916 1981
09917 1981
09918 1981
09919 1981
09920 1981
09921 1981
09922 1981
09923 1981
09924 1981
09925 1981
09926 1981
09927 1981
09928 1981
09929 1981
09930 1981
09931 1981
09932 1981
09933 1981
09934 1981
09935 1981
09936 1981
09937 1981
09938 1981
09939 1981
09940 1981
09941 1981
09942 1981
09943 1981
09944 1981
09945 1981
09946 1981
09947 1981
09948 1981
09949 1981
09950 1981
09951 1981
09952 1981
09953 1981
09954 1981
09955 1981
09956 1981
09957 1981
09958 1981
09959 1981
09960 1981
09961 1981
09962 1981
09963 1981
09964 1981
09965 1981
09966 1981
09967 1981
09968 1981
09969 1981
09970 1981
09971 1981
09972 1981
09973 1981
09974 1981
09975 1981
09976 1981
09977 1981
09978 1981
09979 1981
09980 1981
09981 1981
09982 1981
09983 1981
09984 1981
09985 1981
09986 1981

17. The computer system of claim 16, wherein the instructions that translate, when performed on the processor, cause the computer system to:

select the at least one vendor specific device command, within the set of vendor specific device commands, that performs zoning operations, in the device to which the generic zone control command is directed, in accordance with the generic zone control command; and

map parameters of the generic zone control command to parameters of the at least one vendor specific device command to provide the vendor specific device command with data required to perform the zoning operations in the device.

18. The computer system of claim 16 wherein the instructions that select the set of vendor specific device commands, when executed, cause the computer system to select the set of the vendor specific device commands based on an identity of a vendor of the device to which the generic zone control command is directed.

19. The computer system of claim 12 wherein the multi-zone management application is a device management application that can control zoning in a network of switches from different vendors, the network coupled to the input-output interface.

20. The computer system of claim 12 wherein the instructions that perform, when performed on the processor, cause the computer system to perform the at least one vendor specific device command to control zoning within a device from a vendor that is a vendor of devices that are controlled by the vendor specific device command to which the generic zone control command is mapped.

21. The computer system of claim 12 wherein the instructions that translate, when performed on the processor, cause the computer system to load a library of vendor specific device commands into a management application based on a vendor of a device affected by the generic zone control command to allow the management application to perform vendor specific device commands in order to carry out the generic zone control command within the device affected by the generic zone control command.

22. The computer system of claim 12 wherein the instructions that translate, when performed on the processor, cause the computer system to load a dynamically linked library of vendor specific device commands, selected by a device identifier coupled to the memory system, based on a vendor of a device affected by the zoning control command, into the memory system for use by the management application to control zoning in the device.

23. The computer system of claim 12 wherein the memory system is encoded with at least one command mapping that indicates how the generic zone control command corresponds to the vendor specific device command for a specific vendor device, and wherein the instructions that translate use the command mapping to map the generic zone control command to a format required by the vendor device specific command within the vendor device specific command set.

24. A computer program product having a computer-readable medium including computer program logic encoded thereon that when performed on a computer system provides a method for controlling zoning within a device, and wherein when the computer program logic is performed on a processor in the computer system, the computer program logic causes the processor to perform the operations of:

receiving a generic zone control command;

translating the generic zone control command to at least one vendor specific device command of a plurality of vendor specific device commands that respectively control zoning in a plurality of different vendor devices; and

performing the at least one vendor specific device command to control zoning in a device.

25. The computer program product of claim 24 wherein the plurality of vendor specific device commands includes sets of vendor specific device commands and wherein the computer program logic that causes the processor to perform the operation of translating, when performed on the processor, causes the processor to perform a operations of:

selecting a set of vendor specific device commands that can control zoning within a device to which the generic zone control command is directed; and

dynamically loading the set of vendor specific device commands into a management application to allow the management application to control zoning within the device to which the generic zone control command is directed.

09661103.091300

26. The computer program product of claim 24 wherein the computer program logic that, when performed on the processor, causes the processor to perform the operation of translating, further includes instructions that, when performed on the processor, cause the processor to perform the operations of:

selecting the at least one vendor specific device command, within the set of vendor specific device commands, that performs zoning operations, in the device to which the generic zone control command is directed, in accordance with the generic zone control command; and

mapping parameters of the generic zone control command to parameters of the at least one vendor specific device command to provide the vendor specific device command with data required to perform zoning operations in the device.

27. A management application that operates to control zoning in devices from different vendors in a data storage network, the management application comprising:

a management application user interface that receives a generic zone control command;

a multi-vendor application programming interface coupled to the multi-zone management application user interface, the multi-vendor application programming interface obtaining from a multi-zone command database, based on the generic zone control command, a vendor specific command set containing functions that control zoning in a device associated with the generic zone control command;

a command mapping accessible by the multi-vendor application programming interface, the command mapping defining mappings between parameters from the generic zone control command to parameters required by the vendor specific commands within the vendor specific command set; and

the multi-vendor application programming interface using the command mapping to map the generic zone control command to at least one vendor specific command and performing the at least one vendor specific command to control zoning within a specific

vendor device associated with the generic zone control command.

0961403-091300
00E150 EOT9950
Add A' 7